

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) A method of operation within a data processing system, the method comprising:
before receiving a request to execute a statement that requires computation of a first function, associating the first function with a second function that returns a data type descriptor for the first function;
receiving a request to execute the statement that requires computation of the first function to return data from a source; and
in response to receiving the request to execute the statement, performing the steps of:
executing the second function to obtain the data type descriptor that identifies one or more data types of result data that should be returned for the first function;
registering the one or more data types with a data processing system;
compiling the statement based on the registered one or more data types;
executing the first function to obtain the result data;
storing the result data obtained from the source in a format that reflects the registered one or more data types; and
returning the result data as data in the format of the registered one or more data types,
wherein the method is performed by one or more computing devices.
- 2-3. (Canceled)
4. (Previously Presented) The method of claim 1 further comprising determining that the source is associated with the request by determining whether a certain keyword is specified as a data return type for the first function.

5. (Previously Presented) The method of claim 1 further comprising determining that the source is associated with the request by determining whether the first function returns data in an array of data elements.
- 6-8. (Canceled)
9. (Previously Presented) The method of claim 1 wherein the data type descriptor indicates an arrangement of rows and columns of a database table and wherein storing the result data obtained from the source in a format that reflects the registered one or more data types comprises tabulating the result data according to the arrangement of rows and columns.
- 10-15. (Canceled)
16. (Previously Presented) A system comprising:
a processing entity; and
a memory coupled to the processing entity and having program code stored therein which, when executed by the processing entity, causes the processing entity to:
before receiving a request to execute a statement that requires computation of a first function, associate the first function with a second function that returns a data type descriptor for the first function;
receive a request to execute the statement that requires computation of the first function included in the program code to return data from a source; and
in response to receiving the request to execute the statement, performing the steps of:
executing the second function to obtain the data type descriptor that identifies one or more data types of result data that should be returned for the first function;
registering the one or more data types with a data processing system;
compiling the statement based on the registered one or more data types;
executing the first function to the obtain result data,

storing the result data obtained from the source in a format that reflects the
registered one or more data types; and
returning the result data as data in the format of the registered one or more data
types.

17-21. (Canceled)

22. (Currently Amended) A volatile or non-volatile computer-readable storage medium carrying one or more sequences of instructions which, when executed by one or more processors, causes the one or more processors to:
- before receiving a request to execute a statement that requires computation of a first function, associate the first function with a second function that returns a data type descriptor for the first function;
- receive a request to execute the statement that requires computation of the first function to return data from a source; and
- in response to receiving the request to execute the statement, performing the steps of:
- executing the second function to obtain the data type descriptor that identifies one or more data types of result data that should be returned for the first function;
- registering the one or more data types with a data processing system;
- compiling the statement based on the registered one or more data types;
- executing the first function to obtain the result data,
- storing the result data obtained from the source in a format that reflects the
registered one or more data types; and
- returning the result data as data in the format of the registered one or more data
types.

23-24. (Canceled)

25. (Previously Presented) The method of claim 1 wherein the registered one or more data types is used to type-check the first function.

26. (Currently Amended) The volatile or non-volatile computer readable storage medium of claim 22 further comprising determining that the source is associated with the request by determining whether a certain keyword is specified as a data return type for the first function.
27. (Currently Amended) The volatile or non-volatile computer readable storage medium of claim 22 further comprising determining that the source is associated with the request by determining whether the first function returns data in an array of data elements.
28. (Currently Amended) The volatile or non-volatile computer readable storage medium of claim 22 wherein the data type descriptor indicates an arrangement of rows and columns of a database table and wherein storing the result data obtained from the source in a format that reflects the registered one or more data types comprises tabulating the result data according to the arrangement of rows and columns.
29. (Canceled)
30. (Currently Amended) The volatile or non-volatile computer readable storage medium of claim 22 wherein the registered one or more data types is used to type-check the first function.
- 31-34. (Canceled)
35. (Previously Presented) The system of claim 16 further comprising determining that the source is associated with the request by determining whether a certain keyword is specified as a data return type for the first function.
36. (Previously Presented) The system of claim 16 further comprising determining that the source is associated with the request by determining whether the first function returns data in an array of data elements.

37. (Previously Presented) The system of claim 16 wherein the data type descriptor indicates an arrangement of rows and columns of a database table and wherein storing the result data obtained from the source in a format that reflects the registered one or more data types comprises tabulating the result data according to the arrangement of rows and columns.
38. (Previously Presented) The system of claim 16 wherein the registered one or more data types is used to type-check the first function.
39. (New) The method of Claim 1 wherein the one or more registered data types are temporary and are deleted (a) when execution of the statement is complete or (b) when a compilation of the statement is deleted, overwritten, or otherwise removed from memory.
40. (New) The method of Claim 1 wherein the one or more registered data types includes a flag to indicate that the one or more registered data types are temporary; executing a process periodically to identify temporary data types; and deleting the temporary data types identified for which (a) execution of all statements referencing the one or more data types is complete or (b) where compilations of all statements referencing the one or more data types have been removed from memory.
41. (New) The volatile or non-volatile computer readable storage medium of Claim 22 wherein the one or more registered data types are temporary and are deleted (a) when execution of the statement is complete or (b) when a compilation of the statement is deleted, overwritten, or otherwise removed from memory.
42. (New) The volatile or non-volatile computer readable storage medium of Claim 22 wherein the one or more registered data types includes a flag to indicate that the one or more registered data types are temporary; executing a process periodically to identify temporary data types; and

deleting the temporary data types identified for which (a) execution of all statements referencing the one or more data types is complete or (b) where compilations of all statements referencing the one or more data types have been removed from memory.

43. (New) The system of Claim 16 wherein the one or more registered data types are temporary and are deleted (a) when execution of the statement is complete or (b) when a compilation of the statement is deleted, overwritten, or otherwise removed from memory.
44. (New) The system of Claim 16 wherein the one or more registered data types includes a flag to indicate that the one or more registered data types are temporary; executing a process periodically to identify temporary data types; and deleting the temporary data types identified for which (a) execution of all statements referencing the one or more data types is complete or (b) where compilations of all statements referencing the one or more data types have been removed from memory.